For example, none of these documents, regardless of whether they are considered individually or in combination, disclose or suggest positioning an image on a nonplanar surface to indicate a direction of gaze and enhance nonverbal combination associated with facial features. Such a feature is broadly encompassed by independent claims 1, 21 and 30. The documents relied upon in the Office Action teach away from such a feature, and any effort to have combined features from the cited patent documents in the manner suggested by the Examiner would not have yielded predictable results.

Applicant's exemplary Figure 1 illustrates a video system using a nonplanar display 102 with facial features 104. The nonplanar display 102 can, for example, be a three-dimensional head shape with an image-generating display surface. For example, the display surface can be formed from flexible area-conserving protective display patches which are tiled to cover the surface of a nonplanar head. See, for example, paragraphs [0018] and [0019]. A computer or other processing apparatus can be provided to position the image to appear on each display patch so that facial features appear seamless to a local user.

Figure 2 illustrates an exemplary embodiment that collects prospective images to help preserve eye contact, gaze information and other nonverbal ques of a local user, on a head-shaped nonplanar display 204. Figures 4A, 4B and 4C illustrate exemplary embodiments for generating facial images on a nonplanar surface. For example, using projectors 410, 412 and 414, the image of a remote user can be kept centered on the centered axis of a nonplanar display surface 416.

Figure 5 shows an exemplary method which includes gathering and displaying facial features of a user on a nonplanar display. One or more cameras can be used

to gather the images and display them on the nonplanar display device, as described in paragraph [0033]. A positioning system can be used to position an image on the nonplanar display surface to indicate a gaze of a remote user (step 504). Cameras positioned on the nonplanar display near the local user can collect images of the local user's facial image or expression in step 506. Images of the local user are then transmitted for display on the nonplanar display of the remote user in step 508.

The foregoing features are broadly encompassed by Applicant's independent claims 1, 21 and 30, and are neither taught nor suggested by the documents relied upon by the Examiner. In rejecting these claims on pages 2-3 of the Office Action, the Examiner refers to the Utt patent document at paragraph [0038], [0011, lines 1-5], [0012, lines 2-5] and [0059, lines 1-10]. In the paragraph bridging pages 2-3 of the Office Action, the Examiner acknowledges that the Utt patent document "... is silent about positioning the image on the nonplanar surface to indicate a direction of gaze and enhance nonverbal communication associated with the facial features." The Examiner therefore relies on the Trivedi patent document with reference to paragraph [0075] and [0085, lines 1-4]. In the second full paragraph on page 3 of the Office Action, the Examiner asserts:

> Therefore, it is considered obvious that one skilled in the art at the time of the invention would recognize the advantage of modifying Utt's positioning system by providing Trivedi's positioning system which positions the image on the nonplanar surface to indicate a direction of gaze and enhance non-verbal communication associated with the facial features. The motivation for performing such a modification in Utt is to be able to identify persons in a captured video as taught by Trivedi (See Trivedi [0007]).

These assertions are respectfully traversed. The Trivedi patent document does not disclose or suggest a "positioning system" as claimed by Applicant. Trivedi does not disclose or suggest a system which positions an image on **a nonplanar**

surface to indicate a direction of gaze and enhance nonverbal communication associated with facial features.

The Trivedi document is directed to a digital video imaging system for transforming warped video images into rectilinear video images. Paragraph [0041] of the Trivedi document refers to a video processing device 120 as being, for example, a "desktop computer". Trivedi is directed to a video system which can be installed in vehicles to assist pilots, drivers and security personnel to monitor a passenger cabin and luggage cabin, as described in paragraph [0038]. In paragraph [0075], a driver's viewing direction is described as being computed from a filtered face orientation and driver's direction to an omnicam. A driver's view video can be generated from the omnicam video (e.g., 360 degree view) with a fixed zooming factor to approximate a human field of view as illustrated in Figure 15 of the Trivedi patent document. Paragraph [0085] of the Trivedi patent publication describes estimation of eye-gaze direction for providing a driving view. A rough estimate of a driver's gazing direction is described as being estimated from a driver's face orientation.

The system described in the Trivedi patent document is also directed to determining and tracking a person's face orientation. This face detection and tracking is used in applications, such as analyzing the face pose of players at a casino table as described in paragraph [0091]. Other applications include video surveillance as described, for example, at paragraph [0093].

There is no disclosure in the Trivedi patent document of Applicant's claim 1 "positioning system". Trivedi does not disclose how any information acquired using the system disclosed therein, can be used to position an image on a **nonplanar**

surface. The system disclosed in the Trivedi document merely displays sensed information on a planar video display, such as the devices 121 and 122 of Figure 2. These devices allow a viewer to generate a perspective view of interest to the viewer as described at paragraph [0043]. Paragraph [0049] of the Trivedi patent document states that "a client may choose any perspective available in the original video signal and different clients may simultaneously choose different perspective views, entirely independently from one anther without affecting another client's viewing, in the same video signal from a video camera."

The Utt patent document is directed to a display surface having a three dimensional convex shape, and a projection system, such as the Figure 1 projector 3 which projects onto the display surface 5. This patent document, as acknowledged by the Examiner, fails to disclose or suggest a "positioning system" that positions an image on a nonplanar surface to indicate a direction of gaze and enhance nonverbal communication associated with facial features.

At best, any combination of the Utt and Trivedi patent documents would have resulted in using the signal processing of the Trivedi patent to transform an image produced by the projector 3 of the Utt patent document into a rectilinear image. Such image processing clearly teaches away from the presently claimed invention, which is specifically directed to positioning an image on a nonplanar surface to indicate a direction of gaze and enhance nonverbal communication associated with the facial features.

As such, the apparatus of Applicant's independent claim 1 is allowable. Similarly, independent claims 21 and 30 are allowable.

All of the remaining claims depend from the aforementioned independent claims, and recite additional advantageous features which further distinguish over the documents relied upon by the Examiner. Moreover, the Kalt patent cited in the rejection of claims 8-9 fails to overcome the deficiencies described herein.
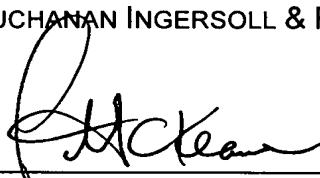
As such, the present application is considered to be in condition for allowance and Notice of Allowance is respectfully solicited.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

Date: <u>September 19, 2007</u>   By: _____

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